

Flare to Power project first for Oman

CUSTOMER

Independent Oil Company

LOCATION

Muscat, Oman

SECTOR

Oil & Gas

SEGMENT

Upstream onshore

APPLICATION

Flare Gas to Power

KEY FACTS

1st

Flare gas power project
in Oman

600k \$ USD

Fuel cost savings per year

4 Technicians

24/7 support



THE CHALLENGE

Design and engineer a flare gas to power solution for critical oilfield areas

An independent oil company (IOC) was using diesel to power three power plants, each in close proximity to critical areas of their oilfield including a process plant, a cluster of artificial ESP's and a camp facility.

With the Oman government making a commitment in Paris to reduce it's flaring of associated petroleum gas (APG) in Omani oil fields, the customer saw the opportunity to reduce operational costs while gaining credibility in the Oman oil industry. They wanted to lead the way in the Sultanate by utilising the gas for power in their operations and proving flare reduction possibilities.

The oilfield is situated in extreme conditions with temperatures in excess of 50°C, excessive sandstorms, and heavy fog moisture all to contend with, and the location itself was remote, 5 hours south of Muscat with only sand roads for access.

There was several challenges including the availability of the APG, treatment and cooling of the gas, to the power distribution systems, process safety and power stability that all to be considered,

The biggest technical challenge would be the treatment of the gas. The flare held condensates and was too hot to be fed directly into a gas engine, so a bespoke engineered solution was required.

The IOC needed a highly experienced reliable partner who could meet the engineering and technical challenges of a flare gas to power project coupled with the extreme environment and remote location, and ultimately one that the senior leadership of the customers organisation could trust to deliver the project successfully.



THE SOLUTION

4 MW centralised power with bespoke gas treatment and custom designed central control system

The first engineering recommendation we made was to replace the decentralised diesel generators located at each site to one centralised APG power centre with the distribution of power to the users from that central source. The furthest distance was 3km away, so we designed our solution with HV cable runs to step the power up and then back down to allow the distances to be covered.

With over a decade of working on flare to power projects in oilfields across the world, we put our application knowledge to the test. We engineered a solution to treat, scrub and cool the gas prior to it going to the engine's which meant we could use the gas and the project was viable.

We replaced 5 MW of diesel decentralised power that was underutilised with 4 MW of continuous gas power. This was made up of 10 QSK60 gas generators, due to the gas de-rate, along with a purpose-built gas conditioning skid and was connected and controlled by

a central control system, and monitored by Fire and Gas detection to ensure safety at all times. We also installed a custom-made high voltage distribution panel to allow additional safety controls.

During the design of the project we followed the customers stringent Management of Change process, attending meetings and design reviews in Muscat until all the departments had confidence in the solution we proposed.

As the power was to be used at three crucial areas in the oilfield, each with differing reasons that the stability of power was critical. We ensured contingency planning was in place which was essential to the approval of this solution by the customer.

This project is supported 24/7 by four Aggreko technicians who live on site ensuring any issues are addressed immediately and their operations are safeguarded from any power matters.



THE IMPACT

Significant cost savings, reduced environmental impact and enhanced reputation in the market

The advantages for the customer are three-fold. The first is the substantial operational cost savings of \$50k per month as they no longer need to use expensive diesel fuel to power critical loads in their oilfield, instead using a gas that would have been wasted through flaring. Second, as figures of flare gas savings are reported to the Ministry of Oil and Gas in Oman, this project has demonstrated their

commitment to the decarbonisation of their operations.

More importantly, as a result of this project they have been seen as leading the industry from the front, gaining them recognition and credibility in the industry which for a smaller player in the Oman oil industry has been well received by senior management and key external stakeholders.

THE AGGREKO DIFFERENCE

Expertise you can trust

